

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

(43) International Publication Date
28 December 2000 (28.12.2000)

(10) International Publication Number
WO 00/78519 A1

PCT

(51) International Patent Classification⁷: **B29C 41/02,**
41/36

(21) International Application Number: PCT/US00/17363

(22) International Filing Date: 23 June 2000 (23.06.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/140,613 23 June 1999 (23.06.1999) US

(71) **Applicant** (for all designated States except US): **STRATASYS, INC.** [US/US]; 14950 Martin Drive, Eden Prairie, MN 55344-2020 (US).

(72) Inventors; and

(75) **Inventors/Applicants** (for US only): **SWANSON,**

William, John [US/US]; 1616 Chelsea Street, Saint-Paul, MN 55108 (US). **TURLEY, Patrick, William** [US/US]; 7531 Bittersweet, Eden Prairie, MN 55344 (US). **LEAVITT, Paul, Joseph** [US/US]; 5600 Irving Avenue South, Minneapolis, MN 55419 (US). **KARWOSKI, Peter, James** [US/US]; 9796 Yalta, Circle Pines, MN 55014 (US). **LA BOSSIERE, Joseph, Edward** [US/US]; 7999 Fourth Avenue, Lino Lakes, MN 55014 (US). **SKUBIC, Robert, L.** [US/US]; 8619 Chanhassen Hills Drive North, Chanhassen, MN 55317 (US).

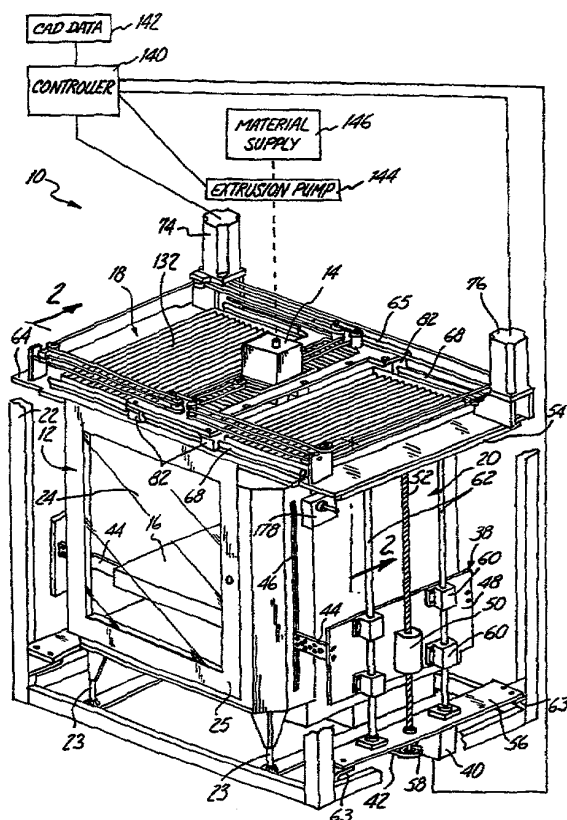
(74) Agents: CHAPMAN, Gena, M. et al.; Kinney & Lange, P.A., Kinney & Lange Building, 312 South Third Street, Minneapolis, MN 55415-1002 (US).

(81) Designated States (national): CN, JP, US.

(84) Designated States (regional): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

[Continued on next page]

(54) Title: HIGH TEMPERATURE MODELING APPARATUS



(57) Abstract: Disclosed is a three-dimensional modeling apparatus (10) that builds up three-dimensional objects in a heated build chamber (24) by dispensing modeling material from a dispensing head (14) onto a base (16) in a pattern determined by control signals from a controller (140). The motion control components (18, 20) of the apparatus (10) are external to and thermally isolated from the build chamber (24). A deformable thermal insulator (132) forms a ceiling of the build chamber, allowing motion control of the dispensing head (14) in an x, y plane by an x-y gantry (18) located outside of and insulated from the build chamber (24). In the preferred embodiment, a material receiving inlet (63) of the dispensing head (14) is external to the build chamber (24) as well, while a material dispensing outlet (66) of the dispensing head is inside the chamber. Thermal isolation of the motion control components from the build chamber allows the chamber to be maintained at a high temperature.

WO 00/78519 A1